

CLAIMS

What is claimed is:

- 5 1. A system for guiding a riser in an offshore environment, comprising:
a hull;
a keel guide attached to the hull;
a keel joint disposed within the keel guide; and
a bushing mounted to the keel guide intermediate the keel joint and the keel guide.
- 10 2. The system as recited in claim 1, wherein the bushing is releasably landed in
the keel guide.
3. The system as recited in claim 1, wherein the bushing comprises a plurality
15 of wear inserts positioned to bear against the keel joint.
4. The system as recited in claim 2, wherein the keel guide comprises an
internal shoulder positioned to engage the bushing.
- 20 5. The system as recited in claim 4, wherein the keel guide comprises a second
shoulder positioned to restrain the bushing against axial movement.
6. The system as recited in claim 1, wherein the bushing comprises a clamp
connector to couple the bushing to the keel guide.
- 25 7. The system as recited in claim 2, wherein the keel guide comprises a
plurality of lock-down assemblies to prevent inadvertent linear motion of the bushing
relative to the keel guide.

8. The system as recited in claim 1, wherein the keel guide comprises a landing feature in the shape of a bowl.

5 9. The system as recited in claim 1, wherein the bushing comprises a retention mechanism having a plurality of spring-loaded pins that interact with the keel guide.

10 10. The system as recited in claim 1, wherein the bushing comprises a retention mechanism having a plurality of swinging lock-down pin assemblies.

11. The system as recited in claim 1, further comprising a wear sleeve external to the keel joint.

12. The system as recited in claim 1, wherein the bushing comprises a plurality of replaceable wear inserts that act against the keel joint.

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13. The system as recited in claim 1, wherein the bushing comprises a bushing member that acts against the keel joint, the bushing member having a wear coating.

14. A system for guiding a riser used in an offshore environment, comprising:
20 a keel guide having a landing feature, the landing feature being positioned to selectively hold a bushing mechanism.

15. The system as recited in claim 14, further comprising a bushing releasably landed on the landing feature.

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16. The system as recited in claim 15, further comprising a keel joint slidably positioned within the bushing.

17. The system as recited in claim 16, further comprising a hull to which the keel guide is attached.

5 18. The system as recited in claim 14, wherein the landing feature comprises a shoulder.

19. The system as recited in claim 14, wherein the landing feature comprises a pair of shoulders.

10 20. The system as recited in claim 18, wherein the landing feature comprises an adjustable locking pin.

15 21. The system as recited in claim 18, wherein the landing feature comprises a clamp assembly.

22. A method for guiding a riser, comprising:
releasably attaching a bushing to a riser assembly;
passing the riser assembly downward through a keel guide; and
landing the bushing in the keel guide.

20 23. The method as recited in claim 22, further comprising releasing the bushing from the riser assembly to permit linear movement of the riser assembly through the bushing.

25 24. The method as recited in claim 23, wherein releasing comprises fracturing a frangible connection.

25. The method as recited in claim 22, wherein landing comprises landing the bushing against a shoulder in the keel guide.

26. The method as recited in claim 23, wherein releasing comprises moving a keel joint of the riser assembly through the bushing.

27. The method as recited in claim 26, further comprising utilizing a plurality of bushing wear inserts to bear against the keel joint.

28. The method as recited in claim 22, further comprising passing a tieback connector through the keel guide.

29. A device for use with a riser in an offshore environment, comprising:

a bushing having a landing mechanism, the landing mechanism extending radially outward for engagement with a surrounding keel guide.

30. The device as recited in claim 29, wherein the bushing comprises an opening in which a keel joint is slidably receivable.

31. The device as recited in claim 30, wherein the bushing comprises a frangible connector for temporary coupling to a riser assembly.